

on the 27th, and on the Middle and East Atlantic coasts on the 28th. Cautionary Signals were ordered for the Lake ports and on the Atlantic coast from Wilmington to Eastport, but they were not generally justified at the stations.

No. VIII.—This depression, although slight, apparently developed in the Ohio valley, while a second depression was central west of the Mississippi and south of the Missouri. A tornado occurred near St. Louis, Mo., on the morning of the 28th, extending over an area of twenty miles, and proving destructive to crops and buildings. The record of the wind-velocity at the St. Louis station shows the proximity of this disturbance, and that it was of a local character. The region of rain gradually extended to the east and south, with no decided change in the barometer, and a greater portion of the rain of the month fell at the stations in the Middle Atlantic States and near the New England coast on the 29th, 30th, and 31st, while this depression moved southeastward, and passed off the South Atlantic coast.

TEMPERATURE OF THE AIR.

In General.—The temperature has averaged high during the month, especially in the districts east of the Mississippi, and was in no case below the normal, except on the Pacific coast. Comparing chart No. II with that of the previous month, it will be seen the isothermal line of 80° has moved north from the Gulf coast, and approximately follows the 37th parallel between the Alleghany Mountains and the eastern slope of the Rocky Mountains. East of the Alleghanies this line follows the course of the range to the head of the Chesapeake Bay. The isothermal lines of 75° and 70° are deflected to the north as they approach the coast, the latter including within its area a greater portion of the St. Lawrence valley. The influence of the ocean temperature is well marked in the higher latitudes on the eastern coast by the sudden deflection of the isothermal lines 75°, 70° and 65° to the south. It will be seen from the table that the greatest variations from the mean are, +4°·5 in the Lower Lake region, and about +3° in the Middle and Eastern States. Compared with July, 1875, the month has been decidedly warmer in the northeastern districts, and a lower mean prevailed in the Gulf States and Southwest. Compared with July, 1874, the temperature has been lower in the Mississippi, Missouri and lower Ohio valleys. On the Pacific coast the temperature has averaged 69° at San Diego, 59° at San Francisco and 67° at Portland, Or., or only a difference of 2° in temperature for 12° of latitude. Daily reports from the Signal Service telegraph stations in Arizona gave temperatures ranging from 100° to 110° at the observation taken at 4:35 p. m., Washington time.

Maximum Temperatures.—The highest temperatures for the month have occurred as follows: Baltimore, Cape Henry, New York and Washington, 99°; Bismarck, Denison, Lynchburg, Philadelphia, Sandy Hook and Tybee Island, 100°; Denver, Jacksonville, Montgomery and Pittsburgh, 101°; North Platte and Norfolk, 103°; Corsicana, 105; Dodge City, 108°.

Minimum Temperatures.—Temperatures below 47° have been reported as follows: Pembina, 46°; Bismarck, Alpena and Colorado Springs, 45°; Cheyenne and Marquette, 44°; Denver, 43°; Wytheville, 42°; Virginia City, 39°; Mt. Washington, 32°; Pike's Peak, 18°.

Ranges of Temperature.—The greatest ranges of temperature for the month are: Denver, 58°; Bismarck, Dodge City and North Platte, 55°; Marquette, 54°; Alpena and Cheyenne, 52°; Wytheville, 51°; Colorado Springs and Virginia City, 50°. The smallest ranges have been: at New Orleans, 17°; San Diego, 18°; Key West, 19°; Galveston, 21°; Cape Lookout and Mobile, 22°; Cape May, Indianola and San Francisco, 25°.

PRECIPITATION.

The quantity of rain-fall has generally been an excess, compared with that of previous years, although there is a deficiency reported in the Western Gulf States and Upper Missouri valley. Chart No. III appears more irregular than usual, but the distribution of rain-fall does not materially differ from that of the previous month. The areas of over ten (10) inches in the South Atlantic States diminished and moved southward, as is usual, with the advance of summer. A large excess occurred in the Lower Missouri valley, the area extending northward over Iowa and the western portion of Illinois. An excess occurred a little south of the Lake region, which corresponds to a similar excess shown on the chart of the previous month. In comparing the rain-fall in the Lake region with that occurring in the districts east and west of it on the same latitude, it will be seen that the evaporation from these large bodies of water does not increase the precipitation in this region, although the number of days upon which rain falls is greater. Compared with July, 1875, the rain-fall has been more generally distributed; the large area of drought in the Gulf States during that year having received a rain-fall of from four to ten inches. A slight excess of rain occurred on the Pacific coast, but the average for the three stations amounts to only 0.33 inches; while no measurable quantity fell at San Diego.